

10/6/13/06

Search results

# Freeform Search

US Pre-Grant Publication Full-Text Database  
 US Patents Full-Text Database  
 US OCR Full-Text Database  
**Database:** EPO Abstracts Database  
 JPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

**Term:** (E1b or E1b) near5 ("same" or identical or  
 different or heterologous) near5 promoter\$

**Display:** 100 Documents in Display Format: [ Starting with Number 1 ]

**Generate:**  Hit List  Hit Count  Side by Side  Image

**Search** **Clear** **Interrupt**

## Search History

**DATE:** Friday, March 11, 2005 [Printable Copy](#) [Create Case](#)

| <u>Set</u>  | <u>Hit</u>   | <u>Set</u>  |
|---|--------------|-------------|
| <u>Name</u>   | <u>Count</u> | <u>Name</u> |
| side by side  |              | result set  |
| DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR  |              |             |
| <u>L7</u> L3 and retrovir\$ near5 vector\$  | 6            | <u>L7</u>   |
| <u>L6</u> L5 and retrovir\$ near3 vector\$  | 2            | <u>L6</u>   |
| <u>L5</u> l3 and (A549 or PC-3)   | 11           | <u>L5</u>   |
| <u>L4</u> l3 and A549   | 11           | <u>L4</u>   |
| <u>L3</u> (E1b or E1b) near5 ("same" or identical or different or heterologous)<br>near5 promoter\$ | 22           | <u>L3</u>   |
| <u>L2</u> (E1a or E1b) near5 ("same" or identical) near5 promoter\$                                 | 16           | <u>L2</u>   |
| <u>L1</u> (E1b or E1b) near5 ("same" or identical) near5 promoter\$                                 | 10           | <u>L1</u>   |

END OF SEARCH HISTORY

## Freeform Search

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|                  |  |
|------------------|--|
| <b>Database:</b> | <input checked="" type="checkbox"/> US Pre-Grant Publication Full-Text Database<br><input checked="" type="checkbox"/> US Patents Full-Text Database<br><input checked="" type="checkbox"/> US OCR Full-Text Database<br><input type="checkbox"/> EPO Abstracts Database<br><input type="checkbox"/> JPO Abstracts Database<br><input type="checkbox"/> Derwent World Patents Index<br><input type="checkbox"/> IBM Technical Disclosure Bulletins |
| <b>Term:</b>     | <input pig.e1a.e1b\""="" type="text" value="\"/>   |
| <b>Display:</b>  | <input type="text" value="100"/> Documents in <u>Display Format:</u> <input type="text"/> Starting with Number <input type="text" value="1"/>  |
| <b>Generate:</b> | <input type="radio"/> Hit List <input checked="" type="radio"/> Hit Count <input type="radio"/> Side by Side <input type="radio"/> Image   |

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### Search History

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**DATE:** Thursday, March 10, 2005 [Printable Copy](#) [Create Case](#)

| <u>Set</u>  | <u>Hit</u>   | <u>Set</u>  |
|---|--------------|-------------|
| <u>Name</u>   | <u>Count</u> | <u>Name</u> |
| side by side  |              | result set  |
| DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR                              |              |             |
| <u>L5</u> "pIG.E1A.E1b"   | 27           | <u>L5</u>   |
| DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=OR                                   |              |             |
| <u>L4</u> per.c6 near10 e1b   | 19           | <u>L4</u>   |
| DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR                              |              |             |
| <u>L3</u> Per.c6 near10 promoter\$ near5 (E1a or E1b)                               | 4            | <u>L3</u>   |
| <u>L2</u> cell near3 line\$ near10 (E1a or E1b) near5 promoter\$ near5 heterologous | 4            | <u>L2</u>   |
| <u>L1</u> (E1a or E1b) near5 promoter\$ near5 heterologous                          | 43           | <u>L1</u>   |

END OF SEARCH HISTORY

## Freeform Search

**Database:**

US Pre-Grant Publication Full-Text Database  
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 IBM Technical Disclosure Bulletins

**Term:**

**Display:**  Documents in Display Format:  Starting with Number

**Generate:**  Hit List  Hit Count  Side by Side  Image

### Search History

**DATE:** Sunday, March 13, 2005 [Printable Copy](#) [Create Case](#)

**Set Name** **Query**

side by side

**Hit Count** **Set Name**

result set

*DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR*

|           |   |     |           |
|-----------|---|-----|-----------|
| <u>L9</u> | l4 and integrat\$ near5 (multipl\$ or different\$)                        | 10  | <u>L9</u> |
| <u>L8</u> | L6 and integrat\$   | 2   | <u>L8</u> |
| <u>L7</u> | L6 and a549   | 1   | <u>L7</u> |
| <u>L6</u> | 20010049136   | 2   | <u>L6</u> |
| <u>L5</u> | cell\$ near10 (E1a or E1b) near5 (regulat\$ or induci\$) near5 promoter\$ | 39  | <u>L5</u> |
| <u>L4</u> | (E1a or E1b) near5 (regulat\$ or induci\$) near5 promoter\$               | 125 | <u>L4</u> |
| <u>L3</u> | (E1a or E1b) near5 (regulat\$ or induci\$) near5 promoter4                | 0   | <u>L3</u> |
| <u>L2</u> | phosphoglycerate near kinase near5 inducib\$                              | 94  | <u>L2</u> |
| <u>L1</u> | phosphoglycerate near kinase near5 regulat\$                              | 66  | <u>L1</u> |

END OF SEARCH HISTORY

# Freeform Search

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|                  |   |
|------------------|---|
| <b>Database:</b> | <input type="checkbox"/> US Pre-Grant Publication Full-Text Database<br><input type="checkbox"/> US Patents Full-Text Database<br><input type="checkbox"/> US OCR Full-Text Database<br><input type="checkbox"/> EPO Abstracts Database<br><input type="checkbox"/> JPO Abstracts Database<br><input type="checkbox"/> Derwent World Patents Index<br><input type="checkbox"/> IBM Technical Disclosure Bulletins |
| <b>Term:</b>     | L16 and a549 and integrat\$   |
| <b>Display:</b>  | <input type="checkbox"/> 100 <b>Documents in Display Format:</b> <input type="checkbox"/> Starting with Number <input type="checkbox"/> 1   |
| <b>Generate:</b> | <input type="radio"/> Hit List <input checked="" type="radio"/> Hit Count <input type="radio"/> Side by Side <input type="radio"/> Image  |

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## Search History

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**DATE:** Sunday, March 13, 2005 [Printable Copy](#) [Create Case](#)

| <u>Set</u>  | <u>Hit</u>   | <u>Set</u>  |
|---|--------------|-------------|
| <u>Name</u>   | <u>Count</u> | <u>Name</u> |
| side by side  |              | result set  |
| <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>               |              |             |
| <u>L27</u> cell\$ near10 (E1a or E1b) near5 promoter\$ near5 RSV            | 10           | <u>L27</u>  |
| <u>L26</u> (E1a or E1b) near5 promoter\$ near5 RSV                          | 110          | <u>L26</u>  |
| <u>L25</u> (E1a or E1b) near5 promoter\$ near5 retrovir\$                   | 18           | <u>L25</u>  |
| <u>L24</u> L23 and substantially  | 1            | <u>L24</u>  |
| <u>L23</u> 20050003545  | 2            | <u>L23</u>  |
| <u>L22</u> L14 and (inducib\$ or regulatab\$)                               | 1            | <u>L22</u>  |
| <u>L21</u> L14 and (E1a or E1b) near5 promoter\$ and producer near5 cell\$  | 0            | <u>L21</u>  |
| <u>L20</u> L14 and (E1a or E1b) near5 promoter\$ and packaging near5 cell\$ | 0            | <u>L20</u>  |
| <u>L19</u> L14 and (E1a or E1b) near5 promoter\$                            | 1            | <u>L19</u>  |
| <i>DB=PGPB,USPT,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>                    |              |             |
| <u>L18</u> l14 and constitutiv\$  | 1            | <u>L18</u>  |
| <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>               |              |             |
| <u>L17</u> L16 and a549 and integrat\$                                      | 1            | <u>L17</u>  |
| <u>L16</u> 6040174 [pn]   | 2            | <u>L16</u>  |
| <u>L15</u> L14 and integrat\$   | 2            | <u>L15</u>  |

|            |  |     |            |
|------------|--|-----|------------|
| <u>L14</u> | 20010049136  | 2   | <u>L14</u> |
| <u>L13</u> | PER.C6 and integrat\$ near10 (multiple\$ or different\$ or tandem\$)                   | 35  | <u>L13</u> |
| <u>L12</u> | PER.C6 near10 integrat\$ and integrat\$ near10 (multiple\$ or different\$ or tandem\$) | 3   | <u>L12</u> |
| <u>L11</u> | PER.C6 near10 integrat\$ near10 (multiple\$ or different\$ or tandem\$)                | 0   | <u>L11</u> |
| <u>L10</u> | PER.C6 near10 integrat\$ near10 (multiple\$ or different\$)                            | 0   | <u>L10</u> |
| <u>L9</u>  | PER.C6 near5 integrat\$ near5 (multiple\$ or different\$)                              | 0   | <u>L9</u>  |
| <u>L8</u>  | PER.C6 near5 integrat\$  | 16  | <u>L8</u>  |
| <u>L7</u>  | PER.C6 and integat\$   | 0   | <u>L7</u>  |
| <u>L6</u>  | PER.C6 and intergat\$  | 0   | <u>L6</u>  |
| <u>L5</u>  | PER.C6   | 146 | <u>L5</u>  |
| <u>L4</u>  | PER.C6 near25 integat\$  | 0   | <u>L4</u>  |
| <u>L3</u>  | PER.C6 near15 integat\$  | 0   | <u>L3</u>  |
| <u>L2</u>  | PER.C6 near5 integat\$   | 0   | <u>L2</u>  |
| <u>L1</u>  | PER.C6 near5 intergat\$  | 0   | <u>L1</u>  |

END OF SEARCH HISTORY

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Your wildcard search against 10000 terms has yielded the results below.

***Your result set for the last L# is incomplete.***

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

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**Search Results - Record(s) 1 through 39 of 39 returned.**

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- 1. [20050019829](#). 30 Dec 03. 27 Jan 05. Protein/solubility folding assessed by structural complementation. Thomas, Philip Jordan, et al. 435/7.1; 435/455 G01N033/53 C12N015/85.
- 2. [20050003545](#). 03 Jul 03. 06 Jan 05. Adenovirus packaging cell lines. Li, Yuanhao, et al. 435/456; 435/325 435/366 C12N005/08 C12N015/861.
- 3. [20050003506](#). 28 May 04. 06 Jan 05. Adenoviral E1A/E1B complementing cell line. Li, Yuanhao, et al. 435/235.1; 435/366 C12N007/00 C12N005/08.
- 4. [20050002905](#). 12 Apr 04. 06 Jan 05. RAAV vector-based pro-opiomelanocortin compositions and methods of use. Scarpace, Philip J., et al. 424/93.2; 435/456 A61K048/00 C12N015/861.
- 5. [20040126846](#). 24 Sep 03. 01 Jul 04. Endogenous granzyme B in non-immune cells. Xu, Hong-Ji, et al. 435/69.1; 435/226 435/320.1 435/325 536/23.2 C12N009/64 C07H021/04.
- 6. [20040115198](#). 27 Aug 03. 17 Jun 04. Activation of lymphocyte populations expressing NKG2D using anti-NKG2D antibodies and ligand derivatives. Spies, Thomas, et al. 424/145.1; A61K039/395.
- 7. [20040086920](#). 20 Aug 03. 06 May 04. STARS - a muscle-specific actin-binding protein. Olson, Eric, et al. 435/6; 435/320.1 435/325 435/69.1 530/350 536/23.5 C12Q001/68 G01N033/53 C07H021/04 C07K014/47.
- 8. [20040029158](#). 16 May 03. 12 Feb 04. HOP - a novel cardiac-restricted transcriptional factor potentially useful for cardiac regeneration and specification. Olson, Eric, et al. 435/6; 435/199 435/320.1 435/325 435/69.1 530/358 530/388.26 536/23.2 C12Q001/68 C07H021/04 C12N009/22 C12P021/02 C12N005/06 C07K016/40.
- 9. [20040009588](#). 24 Jun 03. 15 Jan 04. Vectors for tissue-specific replication and gene expression. Chang, Yung-Nien, et al. 435/320.1; 514/44 A61K048/00 C12N015/00.
- 10. [20040002065](#). 31 Jan 01. 01 Jan 04. PROTEIN/SOLUBILITY FOLDING ASSESSED BY STRUCTURAL COMPLEMENTATION. Thomas, Philip Jordan, et al. 435/6; 435/7.1 C12Q001/68 G01N033/53.
- 11. [20030152914](#). 31 May 02. 14 Aug 03. Method for generating replication defective viral vectors that are helper free. Kaplitt, Michael G., et al. 435/5; 435/235.1 435/320.1 435/456 435/6 C12Q001/70 C12Q001/68 C12N007/00 C12N015/861.
- 12. [20030138954](#). 02 Dec 02. 24 Jul 03. Methods and compositions relating to restricted expression lentiviral vectors and their applications. Trono, Didier, et al. 435/456; 435/235.1 435/320.1 C12N015/867 C12N007/00.

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- 13. 20030109472. 30 May 02. 12 Jun 03. Replicating adenovirus vectors. Amalfitano, Andrea, et al. 514/44; 424/93.2 435/235.1 435/320.1 435/456 A61K048/00 C12N007/00 C12N015/861.
- 14. 20030108920. 09 Sep 02. 12 Jun 03. Tumor suppressor-like proteins that bind IGFBP2. Zhang, Wei, et al. 435/6; 435/320.1 435/325 435/69.1 435/7.23 514/12 514/44 530/350 536/23.2 800/18 A61K048/00 A61K038/17 A01K067/027 C12Q001/68 G01N033/574 C12P021/02 C12N005/06 C07K014/47.
- 15. 20030104625. 22 Feb 02. 05 Jun 03. Novel oncolytic adenoviral vectors. Cheng, Cheng, et al. 435/456; 435/199 435/235.1 435/320.1 C12N015/861 C12N009/22 C12N007/00.
- 16. 20030087247. 12 Feb 02. 08 May 03. Diagnosis and treatment of inflammation and hyperactive immune conditions. Kumamoto, Tadashi, et al. 435/6; 435/4 C12Q001/68 C12Q001/00.
- 17. 20030082789. 01 Aug 02. 01 May 03. Methods and compositions relating to improved lentiviral vector production systems. Trono, Didier, et al. 435/235.1; 435/366 435/456 C12N007/00 C12N005/08 C12N015/867.
- 18. 20030039657. 14 Apr 00. 27 Feb 03. Inducible vaccines. Johnston, Stephen Albert, et al. 424/184.1; 424/93.21 A61K048/00 A61K039/00.
- 19. 20030022151. 17 Jan 02. 30 Jan 03. Functional screening. Thinakaran, Gopal. 435/4; 435/6 435/7.2 C12Q001/00 C12Q001/68 G01N033/53 G01N033/567.
- 20. 20030008374. 09 Nov 01. 09 Jan 03. Methods and compositions relating to improved lentiviral vectors and their applications. Trono, Didier, et al. 435/235.1; 435/320.1 435/456 C12N015/867 C12N007/01.
- 21. 20020155432. 28 Nov 01. 24 Oct 02. Genetically engineered herpes virus for the treatment of cardiovascular disease. Schwartz, Lewis B., et al. 435/5; 424/199.1 424/205.1 424/229.1 435/320.1 435/69.1 C12Q001/70 C12P021/06 A61K039/12 A61K039/245 A61K039/255 A61K039/265 A61K039/27 C12N015/00 C12N015/09 C12N015/63 C12N015/70 C12N015/74.
- 22. 20020150953. 13 Feb 01. 17 Oct 02. Methods and compositions relating to muscle selective calcineurin interacting protein (MCIP). Williams, R. Sanders, et al. 435/7.23; 424/9.2 435/7.92 G01N033/574 G01N033/53 G01N033/537 G01N033/543 A61K049/00.
- 23. 20020137706. 20 Jul 01. 26 Sep 02. Regulated growth factor delivery for engineered peripheral nerve. Evans, Gregory R.D., et al. 514/44; 424/93.21 A61K048/00.
- 24. 20020119541. 09 Aug 01. 29 Aug 02. Tumor suppressor CAR-1. Killary, Ann, et al. 435/184; 435/320.1 435/325 435/69.2 536/23.2 C07H021/04 C12N009/99 C12P021/02 C12N005/06.
- 25. 20020052485. 20 Apr 01. 02 May 02. Polynucleotides for use in recombinant adeno-associated virus virion production. Colosi, Peter. 536/23.1; 435/235.1 C07H021/02 C07H021/04 C12N007/00.
- 26. 6846670. 28 Nov 01; 25 Jan 05. Genetically engineered herpes virus for the treatment of cardiovascular disease. Schwartz; Lewis B., et al. 435/320.1; 424/199.1 424/229.1 435/235.1 435/69.1 C12N015/00.

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- 27. 6727070. 31 Jan 01; 27 Apr 04. Protein/solubility folding assessed by structural complementation. Thomas; Philip Jordan, et al. 435/7.1; 435/183 435/252.33 435/254.11 435/325 435/348 435/69.1 435/69.7 435/7.6 435/7.8 435/7.9 435/71.1 435/8 435/91.4 436/501 530/300 530/350 530/387.1 536/23.1 536/23.4 536/24.1. G01N033/53 G01N033/566 C12P021/06 C07H021/04 C07K014/00.

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- 28. 6676935. 10 Sep 98; 13 Jan 04. Tissue specific adenoviral vectors. Henderson; Daniel R., et al. 424/93.2; 424/93.6 435/320.1 435/325 435/456 514/44. A61K048/00 C12N005/00 C12N015/00.

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- 29. 6638762. 19 Nov 97; 28 Oct 03. Tissue-vectors specific replication and gene expression. Chang; Yung-Nien, et al. 435/325; 424/93.2 435/320.1 435/455 435/69.1 435/91.4 514/44. C12N015/00 C12N015/63.

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- 30. 6585968. 02 Jul 01; 01 Jul 03. Adenovirus vectors specific for cells expressing alpha-fetoprotein and methods of use thereof. Little; Andrew S., et al. 424/93.2; 424/93.1 424/93.6 435/320.1 435/325 435/366 435/455 435/456 435/457 435/69.1 536/23.1 536/24.1. A61K048/00 C12N015/861 C12N005/10 C12N015/63 C12N015/64.

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- 31. 6495130. 29 Dec 99; 17 Dec 02. Target cell-specific adenoviral vectors containing E3 and methods of use thereof. Henderson; Daniel R., et al. 424/93.2; 424/93.1 424/93.6 435/320.1 435/325 435/455 514/44. A61K353/00 A61K048/00 C12N015/63 C12N015/85 C12N015/09.

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- 32. 6436394. 11 Jul 00; 20 Aug 02. Adenovirus vectors specific for cells expressing androgen receptor and methods of use thereof. Henderson; Daniel R., et al. 424/93.2; 424/93.1 424/93.6 435/320.1 435/325 435/366 435/369 435/371 435/455 435/456 435/457. A61K048/00 C12N015/861 C12N005/10 C12N015/63.

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- 33. 6254862. 02 Mar 98; 03 Jul 01. Adenovirus vectors specific for cells expressing alpha-fetoprotein and methods of use thereof. Little; Andrew S., et al. 424/93.2; 424/93.6 435/320.1 435/325 435/366 435/370 435/455 435/456 435/5 435/6. A61K048/00 C12N015/861 C12N005/10 C12N015/63.

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- 34. 6197293. 02 Mar 98; 06 Mar 01. Adenovirus vectors specific for cells expressing androgen receptor and methods of use thereof. Henderson; Daniel R., et al. 424/93.2; 424/93.6 435/320.1 435/325 435/366 435/371 435/375 435/455 435/456 435/5 435/6. A61K048/00 C12N015/861 C12N005/10 C12N015/63.

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- 35. 6017734. 30 Jan 97; 25 Jan 00. Unique nucleotide and amino acid sequence and uses thereof. Summers; Max D., et al. 435/69.7; 435/320.1 435/348 435/365 435/91.4 536/23.1 536/23.72 536/24.1. C07H021/00 C12N005/10 C12N015/33 C12N015/63.

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- 36. 5885829. 28 May 97; 23 Mar 99. Engineering oral tissues. Mooney; David J., et al. 435/325; 424/422 424/435 424/49 435/374 435/378 435/69.1. C12N005/00 C12N005/02 C12N005/08 C12N015/09.

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- 37. 5871726. 26 Jun 96; 16 Feb 99. Tissue specific and tumor growth suppression by adenovirus comprising prostate specific antigen. Henderson; Daniel Robert, et al. 424/93.2; 424/93.6 435/320.1 435/325 435/456. A61K048/00 C12N005/00 C12N015/00.

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- 38. 5474935. 03 Nov 93; 12 Dec 95. Adeno-associated virus (AAV)-based eucaryotic vectors. Chatterjee; Saswati, et al. 435/320.1; 424/93.1 424/93.2. C12N015/86 C12N015/35 C12N005/10

A61K048/00.

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39. 5198346. 26 Jul 90; 30 Mar 93. Generation and selection of novel DNA-binding proteins and polypeptides. Ladner; Robert C., et al. 435/69.1; 435/252.3 435/320.1 435/489. C12N015/63 C12N015/09 C12P021/00.

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| Terms   | Documents |
|---|-----------|
| cell\$ near10 (E1a or E1b) near5 (regulat\$ or induci\$) near5 promoter\$ | 39        |

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- 1. [20050003545](#). 03 Jul 03. 06 Jan 05. Adenovirus packaging cell lines. Li, Yuanhao, et al. 435/456; 435/325 435/366 C12N005/08 C12N015/861.
- 2. [20050003506](#). 28 May 04. 06 Jan 05. Adenoviral E1A/E1B complementing cell line. Li, Yuanhao, et al. 435/235.1; 435/366 C12N007/00 C12N005/08.
- 3. [20040214162](#). 18 Jul 03. 28 Oct 04. PAV regions for encapsidation and E1 transcriptional control. Tikoo, Suresh K.. 435/5; 536/23.72 C12Q001/70 C07H021/04.
- 4. [20040146489](#). 21 Oct 03. 29 Jul 04. Cell-specific adenovirus vectors comprising an internal ribosome entry site. Yu, De-Chao, et al. 424/93.2; 435/235.1 435/456 514/44 A61K048/00 C12N007/00 C12N015/861.
- 5. [20040047836](#). 29 Sep 03. 11 Mar 04. Anti-neoplastic viral agents. Iggo, Richard, et al. 424/93.2; 435/235.1 435/320.1 435/456 A61K048/00 C12N015/86 C12N007/00.
- 6. [20030185801](#). 15 Nov 01. 02 Oct 03. Complementing cell lines. Vogels, Ronald, et al. 424/93.2; 435/235.1 435/325 435/456 A61K048/00 C12N007/00 C12N015/861 C12N005/06 A01N063/00 C12N007/01 C12N005/00 C12N005/02 C12N015/86.
- 7. [20030171336](#). 04 Jun 02. 11 Sep 03. Complementing cell lines. Vogels, Ronald, et al. 514/100; 435/235.1 435/320.1 435/325 514/44 A61K031/70 A01N043/04 A61K031/665 A01N057/00 C12N007/00 C12N007/01 C12N015/00 C12N015/09 C12N015/63 C12N015/70 C12N015/74 C12N005/00 C12N005/02.
- 8. [20030148520](#). 21 Mar 01. 07 Aug 03. Cell-specific adenovirus vectors comprising an internal ribosome entry site. Yu, De-Chao, et al. 435/456; 424/93.2 435/235.1 435/320.1 C12N015/861 C12N007/00 A61K048/00.
- 9. [20030119192](#). 15 Oct 02. 26 Jun 03. Complementing cell lines. Vogels, Ronald, et al. 435/456; 435/235.1 435/366 C12N007/00 C12N005/08 C12N015/861.
- 10. [20030119191](#). 20 Sep 02. 26 Jun 03. Compositions and methods for helper-free production of recombinant adeno-associated viruses. Gao, Guangping, et al. 435/456; 435/235.1 C12N015/861 C12N007/00.
- 11. [20030068307](#). 21 Mar 01. 10 Apr 03. Methods of treating neoplasia with combination of target-cell specific adenovirus, chemotherapy and radiation. Yu, De-Chao, et al. 424/93.21; 424/649 424/85.7 514/110 514/12 514/171 514/251 514/263.38 514/27 514/34 514/50 A61K048/00 A61K038/21 A61K031/7048 A61K033/24.
- 12. [20020168349](#). 30 Jul 01. 14 Nov 02. Anti-neoplastic viral agents. Iggo, Richard, et al. 424/93.21; 424/93.6 435/235.1 536/23.72 A61K048/00 C12N007/00 C07H021/04 A01N063/00 C12N007/01.
- 13. [20020019050](#). 05 Apr 01. 14 Feb 02. Compositions and methods for helper-free production of

recombinant adeno-associated viruses. Gao, Guangping, et al. 435/456; 435/235.1 C12N015/861 C12N007/01.

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- 19. [6258595](#). 23 Sep 99; 10 Jul 01. Compositions and methods for helper-free production of recombinant adeno-associated viruses. Gao; Guang-Ping, et al. 435/320.1; 435/239 435/325 435/455 435/466 514/44 536/23.1. C12N015/86 C12N005/00 C07H021/04 A61K048/00.
- 20. [6228646](#). 07 Mar 97; 08 May 01. Helper-free, totally defective adenovirus for gene therapy. Hardy; Stephen F.. 435/455; 435/320.1 435/456 435/457. C12N015/00.
- 21. [US20050003545A](#). New adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector, useful for producing recombinant adenoviral vectors, e.g. replication competent adenoviral vectors, or oncolytic adenoviral vectors. FARSON, D, et al. C12N000/00 C12N005/08 C12N015/861.
- 22. [US 6764674B](#). New recombinant adenoviral vector comprises a deletion in the E1b region, useful for gene therapy, e.g. treating or preventing diseases including neoplastic conditions. HERMISTON, T, et al. A01N063/00 A61K048/00.

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| Terms   | Documents |
|---|-----------|
| (E1b or E1b) near5 ("same" or identical or different or heterologous)<br>near5 promoter\$ | 22        |

[Prev Page](#) [Next Page](#) [Go to Doc#](#)

 **PALM INTRANET**Day : Friday  
Date: 3/11/2005

Time: 14:28:21

## Inventor Name Search

Enter the **first few letters** of the Inventor's Last Name.

Additionally, enter the **first few letters** of the Inventor's First name.

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## Inventor Name Search

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Date: 3/11/2005

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## Inventor Name Search

Enter the first few letters of the Inventor's Last Name.  
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 **PALM INTRANET**Day : Friday  
Date: 3/11/2005

Time: 14:28:21

## Inventor Name Search

Enter the first few letters of the Inventor's Last Name.  
Additionally, enter the first few letters of the Inventor's First name.

| Last Name | First Name |
|-----------|------------|
|-----------|------------|

|    |        |        |
|----|--------|--------|
| yu | DeChao | Search |
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| Set   | Items               | Description     |
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| HIGHLIGHT                                     | set on as ''        |                 |
| <b>HIGHLIGHT</b>                              | <b>set on as ''</b> |                 |
| ? begin 5,6,55,154,156,312,399,biotech,biosci |                     |                 |
| >>>   | 135                 | is unauthorized |

Set Items Description  
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? s (E1a or E1b) (5n) ("same" or identical) (5n) promoter?  
31821 E1A  
7673 E1B  
4857368 SAME  
1074462 IDENTICAL  
1082542 PROMOTER?  
S1 97 (E1A OR E1B) (5N) ("SAME" OR IDENTICAL) (5N) PROMOTER?  
? s s1 and (A549 or PC-3)  
97 S1  
30149 A549  
473 PC-3  
S2 9 S1 AND (A549 OR PC-3)

? rd s2  
>>>Duplicate detection is not supported for File 391.

>>>Records from unsupported files will be retained in the RD set.

...completed examining records  
S3 2 RD S2 (unique items)

? d s3/9/1-2  
Display 3/9/1 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2005 BIOSIS. All rts. reserv.

0013813287 BIOSIS NO.: 200200406798

Transcriptional targeting of conditionally replicating adenovirus to  
dividing endothelial cells

AUTHOR: Savontaus M J; Sauter B V; Huang T-G; Woo S L C (Reprint)

AUTHOR ADDRESS: Mount Sinai School of Medicine, Institute for Gene Therapy  
and Molecular Medicine, 1425 Madison Avenue, Box 1496, New York, NY,  
10029, USA\*\*USA

JOURNAL: Gene Therapy 9 (14): p972-979 July, 2002 2002

MEDIUM: print

ISSN: 0969-7128

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Conditionally replicating adenoviruses (CRADs) are a novel  
strategy in cancer treatment and clinical trials using CRADs targeted to

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Display 3/9/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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tumor cells have been reported recently. We hypothesized that it would be possible to construct CRADs targeted to dividing endothelial cells, which are present in the tumor endothelium. We utilized the regulatory elements of Flk-1 and endoglin genes, which have been shown to be highly overexpressed in angiogenic endothelial cells, to construct two CRADs: Ad.Flk-1, which has adenoviral E1A gene under the control of the Flk-1 enhancer/promoter, and Ad.Flk-Endo, which harbors the \*\*\*same\*\*\* Flk-1 enhancer/ \*\*\*promoter\*\*\* as Ad.Flk-1, plus it has the adenoviral \*\*\*E1B\*\*\* gene under control of the endoglin \*\*\*promoter\*\*\*. Viral titer measurements by plaque assay showed that in human umbilical vein endothelial cells (HUVECs), both CRADs replicated at levels comparable to that of wild-type adenovirus. In Flk-1 and endoglin negative Hep3B and \*\*\*A549\*\*\* cells, however, the replication of Ad.Flk-1 and Ad.Flk-Endo was reduced by 30-fold and 600-fold, respectively. Cytotoxicity assays demonstrated that both CRADs killed HUVECs as effectively as wild-type adenovirus and their cytotoxicity in Hep3B and A549 cells was comparable to nonreplicating control adenovirus. Furthermore, there was a

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striking inhibition (83-91%) of capillary network formation in an in vitro angiogenesis assay when HUVECs were infected with Ad.Flk-1 or Ad.Flk-Endo as compared with the nonreplicating control virus. These results demonstrate that CRADs can be transcriptionally targeted to dividing endothelial cells with high specificity, and that the combined use of Flk-1 and endoglin regulatory elements has a synergistic effect on targeting specificity. This principle may be incorporated into novel therapeutic agents to develop anti-angiogenic treatment for cancer.

DESCRIPTORS:

MAJOR CONCEPTS: Cell Biology; Molecular Genetics--Biochemistry and Molecular Biophysics; Tumor Biology

BIOSYSTEMATIC NAMES: Adenoviridae--dsDNA Viruses, Viruses, Microorganisms; Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGANISMS: adenovirus (Adenoviridae)--conditionally replicating;

A549 cell line (Hominidae); HUVEC cell line (Hominidae)--human umbilical vein endothelial cells; Hep3B cell line (Hominidae)

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Display 3/9/1 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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ORGANISMS: PARTS ETC: endothelial cell--circulatory system

COMMON TAXONOMIC TERMS: Double-Stranded DNA Viruses; Microorganisms; Viruses; Animals; Chordates; Humans; Mammals; Primates; Vertebrates

DISEASES: cancer--neoplastic disease, drug therapy

MESH TERMS: Neoplasms (MeSH)

GENE NAME: human Flk-1 gene (Hominidae); human endoglin gene (Hominidae)

MISCELLANEOUS TERMS: angiogenesis; cell division; transcriptional targeting

CONCEPT CODES:

02502 Cytology - General

02506 Cytology - Animal

02508 Cytology - Human

03502 Genetics - General

03508 Genetics - Human

14504 Cardiovascular system - Physiology and biochemistry

24004 Neoplasms - Pathology, clinical aspects and systemic effects

31500 Genetics of bacteria and viruses

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DIALOG(R)File 5:Biosis Previews(R)

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33506 Virology - Animal host viruses

BIOSYSTEMATIC CODES:

03116 Adenoviridae

86215 Hominidae

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Display 3/9/2 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

(c) 2005 Thomson Derwent & ISI. All rts. reserv.

0358737 DBR Accession Number: 2005-04441 PATENT

New adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector, useful for producing recombinant adenoviral vectors, e.g. replication competent adenoviral vectors, or oncolytic adenoviral vectors - packaging cell culture for adeno virus vector construction for use in gene therapy

AUTHOR: LI Y; FARSON D; TAO L; YU D

PATENT ASSIGNEE: LI Y; FARSON D; TAO L; YU D 2005

PATENT NUMBER: US 20050003545 PATENT DATE: 20050106 WPI ACCESSION NO.:

2005-065249 (200507)

PRIORITY APPLIC. NO.: US 613106 APPLIC. DATE: 20030703

NATIONAL APPLIC. NO.: US 613106 APPLIC. DATE: 20030703

LANGUAGE: English

ABSTRACT: DERWENT ABSTRACT: NOVELTY - An adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector comprising a first expression vector and a second expression vector

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DIALOG(R)File 357:Derwent Biotech Res.

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stably integrated into the genome of the cell line, is new. DETAILED DESCRIPTION - An adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector comprises an adenovirus E1A coding sequence and an adenovirus E1B coding sequence operably linked to a promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B promoter. It comprises a first expression vector and a second expression vector stably integrated into the genome of the cell line, where the first vector comprises adenovirus E1A coding sequences, operatively linked to a non-adenoviral heterologous promoter, and the second vector comprises adenovirus E1B coding sequences operatively linked to a non-adenoviral heterologous promoter. INDEPENDENT CLAIMS are also included for: (1) producing an adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector; and (2) producing E1A/E1B deficient adenovirus. BIOTECHNOLOGY - Preferred Cell Line: The adenovirus E1A coding sequence and the adenovirus E1B coding sequence are stably integrated into mid cell line, operably linked to identical promoters,

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operably linked to the same promoter, operably linked to different promoters, or stably integrated at different sites in the cell line. Preferably, the cell line is a human cell line selected from A549 cells permissive for adenovirus replication PC-3 cells or primary cells permissive for adenovirus production. The promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B promoter is a constitutive promoter and/or a regulatable promoter. Preferably, the promoter is a retrovirus promoter. The adenovirus E1A coding sequence encodes an adenovirus 243 gene product, 289 gene product, or both 243 and 289 gene product. The adenovirus E1A coding sequence comprises 986 bp (SEQ ID NO. 1). The adenovirus E1B coding sequence encodes adenovirus 19 Kd gene product, 55 Kd gene product, or both 19 and 55 Kd gene product. The adenovirus E1B coding sequence comprises 2144 bp (SEQ ID NO. 4). Preferred Method: Producing an adenovirus packaging cell line permissive for replication of an E1A/E1B deficient adenovirus vector comprises introducing into a cell line permissive for adenovirus replication, an expression vector comprising:

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Display 3/9/2 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

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(a) an adenovirus E1A coding sequence operably linked to a promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B promoter; and (b) an adenovirus E1B coding sequence operably linked to a promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B \*\*\*promoter\*\*\*. The adenovirus E1A coding sequence and the adenovirus E1B coding sequence are present on separate and/or \*\*\*same\*\*\* vectors. The \*\*\*E1A\*\*\* and \*\*\*E1B\*\*\* expression vectors are both retroviral expression vectors. Producing

E1A/E1B deficient adenovirus comprises introducing an E1A/E1B deficient adenovirus into the packaging cell line, and recovering from the cell line a population of adenovirus substantially free of replication competent adenovirus. USE - The adenovirus packaging cell line is useful for producing recombinant adenoviral vectors, e.g. replication competent adenoviral vectors, oncolytic adenoviral vectors, or replication defective adenoviral vectors. It is particularly useful for producing stocks of adenoviral particles with minimal potential for recombination events between the packaging cell line genome and the

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adenoviral vector. It can also be used for clinical applications. ADMINISTRATION - Administration can be through oral, nasal, buccal, rectal, vaginal, topical, orthotopic, intradermal, subcutaneous, intramuscular, intraperitoneal, or intravenous routes. No dosage details given. EXAMPLE - Naive \*\*\*A549\*\*\* cells (ATCC Number CCL-185) were cultured in complete medium including DME/High, 10% fetal bovine serum, 1% glutamine and 1% Pen-Strep. Adenoviral E1A and E1B coding sequences were stably introduced into **A549** cells by co-infecting the cells with MMLV-E1A and MMLV-E1B viruses by spinoculation. 1x10<sup>5</sup> cells were resuspended in 1 ml of E1A/E1B viral supernatants and 8 microl/ml of polybrene. The cell and virus mixture was then centrifuged at 3400 rpm at 34 degrees Centigrade for 4 hours. After spinoculation, the populations were resuspended with complete medium, transferred into 6-well plates and incubated in 5% incubator at 37 degrees Centigrade for 8 days. The populations were dilution cloned on 10-cm dishes. Clones were picked into 96-well plates, and duplicate wells were made. These were grown for 5 days to allow cell expansion. (23 pages)

-more-

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Display 3/9/2 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

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DESCRIPTORS: replication competent, oncolytic, replication defective adeno virus vector construction, **A549** cell, packaging cell culture, E1A, E1B promoter, appl. gene therapy (24, 07)

SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; BIOMANUFACTURING and BIOCATALYSIS-Animal/Plant Cell Culture

- end of record -

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? rd s1

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DIALOG(R)File 357:Derwent Biotech Res.

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...examined 50 records (50)

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  S4 28 RD S1 (unique items)

? d s4/3/1-28

Display 4/3/1 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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0015180650 BIOSIS NO.: 200500087715

Repression of the melanocyte-specific promoter of the microphthalmia-associated transcription factor by the adenoviral E1A 12S oncoprotein

AUTHOR: Drdova B; Vachtenheim J (Reprint)

AUTHOR ADDRESS: Mol Biol LabUniv HospClin Pneumol, Med Fac 3, Charles Univ,

Budinova 2, CR-18000, Prague, 8, Czech Republic\*\*Czech Republic  
AUTHOR E-MAIL ADDRESS: jivach@upn.anet.cz  
JOURNAL: Folia Biologica (Prague) 50 (5): p159-166 2004 2004  
MEDIUM: print  
ISSN: 0015-5500  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

- end of record -

?  
Display 4/3/2 (Item 2 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0013895791 BIOSIS NO.: 200200489302  
Transcriptional deregulation of the keratin 18 gene in human colon  
carcinoma cells results from an altered acetylation mechanism  
AUTHOR: Prochasson Philippe; Delouis Cecile; Brison Olivier (Reprint)  
AUTHOR ADDRESS: Laboratoire de Genetique Oncologique, UMR 1599 CNRS,  
Institut Gustave-Roussy, 39 rue Camille Desmoulins, 94805, Villejuif  
Cedex, France\*\*France  
JOURNAL: Nucleic Acids Research 30 (15): p3312-3322 August 1, 2002 2002  
MEDIUM: print  
ISSN: 0305-1048  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

- end of record -

?  
Display 4/3/3 (Item 3 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2005 BIOSIS. All rts. reserv.

0013813287 BIOSIS NO.: 200200406798  
Transcriptional targeting of conditionally replicating adenovirus to  
dividing endothelial cells  
AUTHOR: Savontaus M J; Sauter B V; Huang T-G; Woo S L C (Reprint)  
AUTHOR ADDRESS: Mount Sinai School of Medicine, Institute for Gene Therapy  
and Molecular Medicine, 1425 Madison Avenue, Box 1496, New York, NY,  
10029, USA\*\*USA  
JOURNAL: Gene Therapy 9 (14): p972-979 July, 2002 2002  
MEDIUM: print  
ISSN: 0969-7128  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

- end of record -

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Display 4/3/4 (Item 4 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2005 BIOSIS. All rts. reserv.

0012357238 BIOSIS NO.: 200000075551  
Properties of the adenovirus type 40 E1B promoter that contribute to its  
low transcriptional activity  
AUTHOR: Mautner Vivien (Reprint); Bailey Andy; Steinthorsdottir Valgerdur;  
Ullah Robina; Rinaldi Angela  
AUTHOR ADDRESS: CRC Institute for Cancer Studies, University of Birmingham,  
Edgbaston, Birmingham, B15 2TA, UK\*\*UK  
JOURNAL: Virology 265 (1): p10-19 Dec. 5, 1999 1999  
MEDIUM: print  
ISSN: 0042-6822  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

- end of record -

? s s4 and packaging (n) cell?  
Processing  
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Processed 10 of 35 files ...  
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Processed 20 of 35 files ...  
Completed processing all files  
    28 S4  
    296283 PACKAGING  
    23178353 CELL?  
    7833 PACKAGING (N) CELL?  
    S5      1 S4 AND PACKAGING (N) CELL?

? d s5/3/1  
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DIALOG(R) File 357:Derwent Biotech Res.  
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0358737 DBR Accession No.: 2005-04441      PATENT  
New adenovirus **packaging cell** line permissive for replication  
    of an E1A/E1B deficient adenovirus vector, useful for producing  
    recombinant adenoviral vectors, e.g. replication competent adenoviral  
    vectors, or oncolytic adenoviral vectors - **packaging cell**  
    culture for adeno virus vector construction for use in gene therapy  
AUTHOR: LI Y; FARSON D; TAO L; YU D  
PATENT ASSIGNEE: LI Y; FARSON D; TAO L; YU D 2005  
PATENT NUMBER: US 20050003545 PATENT DATE: 20050106 WPI ACCESSION NO.:  
    2005-065249 (200507)  
PRIORITY APPLIC. NO.: US 613106 APPLIC. DATE: 20030703  
NATIONAL APPLIC. NO.: US 613106 APPLIC. DATE: 20030703  
LANGUAGE: English

- end of record -

? s (E1a or E1b) (5n) ("same" or identical or different or heterologous) (5n) promoter?  
Processed 20 of 35 files ...  
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Completed processing all files  
    31821 E1A  
    7673 E1B  
    4857368 SAME  
    1074462 IDENTICAL  
    10069300 DIFFERENT  
    247734 HETEROLOGOUS  
    1082542 PROMOTER?  
    S6      313 (E1A OR E1B) (5N) ("SAME" OR IDENTICAL OR DIFFERENT OR  
    HETEROLOGOUS) (5N) PROMOTER?

? rd s6  
>>>Duplicate detection is not supported for File 391.

>>>Records from unsupported files will be retained in the RD set.  
...examined 50 records (50)  
...examined 50 records (100)  
...examined 50 records (150)  
...examined 50 records (200)  
...examined 50 records (250)  
...examined 50 records (300)  
...completed examining records

    S7      89 RD S6 (unique items)  
? s s7 and (A549 or PC-3)  
    89 S7  
    30149 A549  
    473 PC-3

    S8      3 S7 AND (A549 OR PC-3)

? s s7 and packaging (n) cell?  
Processing  
Processed 10 of 35 files ...

Processing  
Processing  
Processed 20 of 35 files ...  
Completed processing all files

89 S7  
296283 PACKAGING  
23178353 CELL?  
7833 PACKAGING (N) CELL?  
S9 3 S7 AND PACKAGING (N) CELL?

? d s9/3/1-3  
Display 9/3/1 (Item 1 from file: 357)  
DIALOG(R)File 357:Derwent Biotech Res.  
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0358737 DBR Accession No.: 2005-04441 PATENT  
New adenovirus **packaging cell** line permissive for replication  
of an E1A/E1B deficient adenovirus vector, useful for producing  
recombinant adenoviral vectors, e.g. replication competent adenoviral  
vectors, or oncolytic adenoviral vectors - **packaging cell**  
culture for adeno virus vector construction for use in gene therapy

AUTHOR: LI Y; FARSON D; TAO L; YU D  
PATENT ASSIGNEE: LI Y; FARSON D; TAO L; YU D 2005  
PATENT NUMBER: US 20050003545 PATENT DATE: 20050106 WPI ACCESSION NO.:  
2005-065249 (200507)  
PRIORITY APPLIC. NO.: US 613106 APPLIC. DATE: 20030703  
NATIONAL APPLIC. NO.: US 613106 APPLIC. DATE: 20030703  
LANGUAGE: English

- end of record -

?  
Display 9/3/2 (Item 2 from file: 357)  
DIALOG(R)File 357:Derwent Biotech Res.  
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0297272 DBR Accession No.: 2002-19119 PATENT  
Novel **packaging cell** line capable of complementing recombinant  
adenovirus based on serotype from subgroup B, useful for producing  
human recombinant therapeutic proteins such as human growth factors and  
antibodies - HEK-293 **cell packaging cell** culture for  
adeno virus vector construction for use in gene therapy

AUTHOR: VOGELS R; HAVENGA M J E; MEHTALI M  
PATENT ASSIGNEE: CRUCELL HOLLAND BV 2002  
PATENT NUMBER: WO 200240665 PATENT DATE: 20020523 WPI ACCESSION NO.:  
2002-519382 (200255)  
PRIORITY APPLIC. NO.: US 713678 APPLIC. DATE: 20001115  
NATIONAL APPLIC. NO.: WO 2001NL824 APPLIC. DATE: 20011114  
LANGUAGE: English

- end of record -

?  
Display 9/3/3 (Item 3 from file: 357)  
DIALOG(R)File 357:Derwent Biotech Res.  
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0293994 DBR Accession No.: 2002-15841 PATENT  
Vector system for preparing recombinant adeno-associated viral particles,  
used for high-level expression of heterologous therapeutic proteins in  
eukaryotic cells - vector-mediated gene transfer, expression in host  
cell and **packaging cell** culture for gene therapy

AUTHOR: ORBERGER G; HELLMUTH K; WAGENER C  
PATENT ASSIGNEE: ARIMEDES BIOTECHNOLOGY GMBH 2002  
PATENT NUMBER: WO 200238782 PATENT DATE: 20020516 WPI ACCESSION NO.:  
2002-435853 (200246)  
PRIORITY APPLIC. NO.: DE 1056210 APPLIC. DATE: 20001113  
NATIONAL APPLIC. NO.: WO 2001EP13125 APPLIC. DATE: 20011113  
LANGUAGE: German

- end of record -

? d s9/9/1-3

Display 9/9/1 (Item 1 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

(c) 2005 Thomson Derwent & ISI. All rts. reserv.

0358737 DBR Accession No.: 2005-04441 PATENT

New adenovirus **packaging cell** line permissive for replication of an E1A/E1B deficient adenovirus vector, useful for producing recombinant adenoviral vectors, e.g. replication competent adenoviral vectors, or oncolytic adenoviral vectors - **packaging cell** culture for adeno virus vector construction for use in gene therapy

AUTHOR: LI Y; FARSON D; TAO L; YU D

PATENT ASSIGNEE: LI Y; FARSON D; TAO L; YU D 2005

PATENT NUMBER: US 20050003545 PATENT DATE: 20050106 WPI ACCESSION NO.: 2005-065249 (200507)

PRIORITY APPLIC. NO.: US 613106 APPLIC. DATE: 20030703

NATIONAL APPLIC. NO.: US 613106 APPLIC. DATE: 20030703

LANGUAGE: English

ABSTRACT: DERWENT ABSTRACT: NOVELTY - An adenovirus **packaging cell** line permissive for replication of an E1A/E1B deficient adenovirus vector comprising a first expression vector and a second

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expression vector stably integrated into the genome of the cell line, is new. DETAILED DESCRIPTION - An adenovirus \*\*\*packaging\*\*\* \*\*\*cell\*\*\* line permissive for replication of an E1A/E1B deficient adenovirus vector comprises an adenovirus E1A coding sequence and an adenovirus E1B coding sequence operably linked to a promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B promoter. It comprises a first expression vector and a second expression vector stably integrated into the genome of the cell line, where the first vector comprises adenovirus **E1A** coding sequences, operatively linked to a non-adenoviral **heterologous promoter**, and the second vector comprises adenovirus **E1B** coding sequences operatively linked to a non-adenoviral \*\*\*heterologous\*\*\* \*\*\*promoter\*\*\*. INDEPENDENT CLAIMS are also included for: (1) producing an adenovirus **packaging cell** line permissive for replication of an E1A/E1B deficient adenovirus vector; and (2) producing E1A/E1B deficient adenovirus. BIOTECHNOLOGY - Preferred Cell Line: The adenovirus E1A coding sequence and the

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adenovirus E1B coding sequence are stably integrated into mid cell line, operably linked to identical promoters, operably linked to the same promoter, operably linked to different promoters, or stably integrated at different sites in the cell line. Preferably, the cell line is a human cell line selected from A549 cells permissive for adenovirus replication PC-3 cells or primary cells permissive for adenovirus production. The promoter that lacks substantial sequence identity with a native adenovirus E1A or E1B promoter is a constitutive promoter and/or a regulatable promoter. Preferably, the promoter is a retrovirus promoter. The adenovirus E1A coding sequence encodes an adenovirus 243 gene product, 289 gene product, or both 243 and 289 gene product. The adenovirus E1A coding sequence comprises 986 bp (SEQ ID NO. 1). The adenovirus E1B coding sequence encodes adenovirus 19 Kd gene product, 55 Kd gene product, or both 19 and 55 Kd gene product. The adenovirus E1B coding sequence comprises 2144 bp (SEQ ID NO. 4).

Preferred Method: Producing an adenovirus **packaging cell** line permissive for replication of an E1A/E1B deficient adenovirus

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vector comprises introducing into a cell line permissive for adenovirus replication, an expression vector comprising: (a) an adenovirus E1A coding sequence operably linked to a **promoter** that lacks substantial sequence identity with a native adenovirus **E1A** or **E1B promoter**; and (b) an adenovirus **E1B** coding sequence operably linked to a **promoter** that lacks substantial sequence identity with a native adenovirus **E1A** or **E1B** \*\*\*promoter\*\*\*. The adenovirus \*\*\*E1A\*\*\* coding sequence and the adenovirus **E1B** coding sequence are present on separate and/or \*\*\*same\*\*\* vectors. The E1A and E1B expression vectors are both retroviral expression vectors. Producing E1A/E1B deficient adenovirus comprises introducing an E1A/E1B deficient adenovirus into the **packaging cell** line, and recovering from the cell line a population of adenovirus substantially free of replication competent adenovirus. USE - The adenovirus \*\*\*packaging\*\*\* \*\*\*cell\*\*\* line is useful for producing recombinant adenoviral vectors, e.g. replication competent adenoviral vectors, oncolytic adenoviral vectors, or

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replication defective adenoviral vectors. It is particularly useful for producing stocks of adenoviral particles with minimal potential for recombination events between the **packaging cell** line genome and the adenoviral vector. It can also be used for clinical applications. ADMINISTRATION - Administration can be through oral, nasal, buccal, rectal, vaginal, topical, orthotopic, intradermal, subcutaneous, intramuscular, intraperitoneal, or intravenous routes. No dosage details given. EXAMPLE - Naive A549 cells (ATCC Number CCl-185) were cultured in complete medium including DME/High, 10% fetal bovine serum, 1% glutamine and 1% Pen-Strep. Adenoviral E1A and E1B coding sequences were stably introduced into A549 cells by co-infecting the cells with MMLV-E1A and MMLV-E1B viruses by spinoculation. 1x10<sup>5</sup> cells were resuspended in 1 ml of E1A/E1B viral supernatants and 8 microl/ml of polybrene. The cell and virus mixture was then centrifuged at 3400 rpm at 34 degrees Centigrade for 4 hours. After spinoculation, the populations were resuspended with complete medium, transferred into 6-well plates and incubated in 5% incubator at 37 degrees Centigrade

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for 8 days. The populations were dilution cloned on 10-cm dishes. Clones were picked into 96-well plates, and duplicate wells were made. These were grown for 5 days to allow cell expansion. (23 pages)

DESCRIPTORS: replication competent, oncolytic, replication defective adeno virus vector construction, A549 **cell**, **packaging cell** culture, E1A, E1B promoter, appl. gene therapy (24, 07)

SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; BIOMANUFACTURING and BIOCATALYSIS-Animal/Plant Cell Culture

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Novel **packaging cell** line capable of complementing recombinant adenovirus based on serotype from subgroup B, useful for producing human recombinant therapeutic proteins such as human growth factors and antibodies - HEK-293 **cell packaging cell** culture for adeno virus vector construction for use in gene therapy

AUTHOR: VOGELS R; HAVENGA M J E; MEHTALI M

PATENT ASSIGNEE: CRUCELL HOLLAND BV 2002

PATENT NUMBER: WO 200240665 PATENT DATE: 20020523 WPI ACCESSION NO.: 2002-519382 (200255)

PRIORITY APPLIC. NO.: US 713678 APPLIC. DATE: 20001115

NATIONAL APPLIC. NO.: WO 2001NL824 APPLIC. DATE: 20011114

LANGUAGE: English

ABSTRACT: DERWENT ABSTRACT: NOVELTY - A **packaging cell** line (I) capable of complementing recombinant adenovirus based on a serotype from subgroup B, is new. DETAILED DESCRIPTION - An INDEPENDENT CLAIM is

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also included for a recombinant adenovirus (II) produced using (I). BIOTECHNOLOGY - Preferred Cell Line: In (I), the serotype from subgroup B is adenovirus type 35. (I) is derived from primary, diploid human cells, or its derivatives, where the primary, diploid human cells, or its derivatives, have been transformed by adenovirus E1 coding sequences either operatively linked on one DNA molecule or located on two separate DNA molecules, where the adenovirus E1 coding sequences are operatively linked to regulatory sequences enabling transcription and translation of encoded proteins. The primary, diploid human cells, or its derivatives, are selected from primary human retinoblasts, primary human embryonic kidney cells, and primary human amniocytes. The primary, diploid human cells, or its derivatives, have been transfected with an adenovirus E1A coding sequence to induce unlimited proliferation. (I) further comprises an E1B coding sequence. The primary, diploid human cells, or its derivatives, have been transformed by expression of adenovirus E1 proteins of a subgroup other than subgroup C, where the subgroup other than subgroup C is subgroup B. The

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adenovirus E1 proteins are derived from adenovirus type 35. The primary, diploid human cells, or its derivatives, have been transformed with a chimeric adenovirus E1 construct comprising part of a first adenovirus E1 coding sequence of a first adenovirus serotype that enables efficient transformation of primary human cells or its derivatives, and part of a second adenovirus E1 coding sequence of a second adenovirus serotype, where the second adenovirus E1 coding sequence provides the serotype-specific adenovirus E1B functions that enable efficient propagation of recombinant adenovirus E1-deleted viruses of the second adenovirus serotype. The first adenovirus serotype is a subgroup C adenovirus and the second adenovirus serotype is a subgroup B adenovirus, preferably adenovirus type 35. The E1A coding sequence and at least part of the E1B-21K coding sequence are derived from a subgroup C adenovirus, and the E1B-55K coding sequence as far as not overlapping with the 21K coding sequence is derived from a subgroup B adenovirus. All E1 coding sequences are derived from a subgroup C adenovirus, except for at least a part of the E1B-55K coding

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sequence that is necessary for serotype-specific complementation of an

alternative adenovirus serotype, where the E1B coding sequence is derived from the alternative adenovirus serotype. (I) comprises bovine adenovirus E1B-55K. The complementing recombinant adenovirus is derived from a bovine adenovirus. The primary, diploid human cells, or its derivatives, have been transformed by adenovirus E1 coding sequences located on two separate DNA molecules, where the first DNA molecule carries at least part of the E1 coding sequences of the serotype enabling efficient transformation and the second DNA molecule carries at least part of the sequences necessary for serotype-specific complementation. The derivative cells are PER.C6 (ECACC deposit number 96022940) which further comprise an Ad35-E1 region integrated into their genome, and the Ad35-E1 region is present in a functional expression cassette. The Ad35-E1 region does not contain sequences overlapping with sequences present in an associated recombinant viral vector. The functional expression cassette comprises a heterologous promoter and a poly-adenylation signal functionally linked to the

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Ad35-E1 region, where the heterologous promoter is a human phosphoglycerate gene promoter (hPGK) and the poly-adenylation signal is a hepatitis B virus poly-adenylation signal (HBV-pA). The Ad35-E1 region comprises the coding regions of the E1A proteins and the E1B promoter sequence linked to E1B coding sequences up to and including the stop codon of the E1B 55K protein. The Ad35-E1 region comprises nucleotides 468 to and including nucleotide 3400 of the Ad35 wild-type.

(I) is derived from PER.C6 (ECACC deposit number 96022940), and comprises Ad35-E1B coding sequences. The Ad35- \*\*\*E1B\*\*\* coding sequences are driven by an **E1B promoter**, a hPGK **promoter** or an elongation factor-1alpha (EF-1alpha) **promoter** and terminated by a **heterologous** poly-adenylation signal such as a hepatitis B virus poly-adenylation signal (HBV-pA). The Ad35-E1B coding sequences comprise the coding sequences of the E1B 21K and the E1B 55K proteins located between nucleotides 1611 and 3400 of the wild-type Ad35 sequence. The Ad35-E1B coding sequences comprise nucleotides 1550 to and including nucleotide 3400 of the wild-type Ad35

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sequence. The Ad35-E1B coding sequences comprise the coding sequences of the E1B-55K gene located between 1916 and 3400 of the wild type Ad35 sequence. (I) lacks a functional coding sequence for E1B-21K. (I) further comprises a DNA encoding at least E4-orf6 of an adenovirus of subgroup B. Preferred Adenovirus: (II) comprises a deletion of nucleic acid encoding at least one E1-region protein or E3-region protein and/or at least one E4-region protein. ACTIVITY - None given. MECHANISM OF ACTION - Gene therapy. No biological data is given. USE - (I) is useful for complementing a recombinant adenovirus by providing (I) with the recombinant adenovirus, culturing the cell to allow for complementation, and harvesting complemented recombinant adenovirus, where the recombinant adenovirus is derived from (adenovirus) a subgroup B adenovirus or adenovirus type 35. (II) is useful for the preparation of a medicament. (All claimed). (I) is useful for producing human recombinant therapeutic proteins such as human growth factors and human antibodies, and for producing human viruses other than adenovirus such as influenza virus, herpes simplex virus, rotavirus, or measles

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virus. (II) is useful for gene therapy and vaccination. EXAMPLE - Generation of cell lines capable of complementing E1-deleted Ad35 viruses was as follows: The construct pIG.E1A.E1B that contained E1 region sequences of Ad5 corresponding to nucleotides 459-3510 of the wildtype Ad5 sequence operatively linked to the human phosphoglycerate kinase promoter (PGK) and the hepatitis B virus polyA sequences was constructed as described in International Patent Application Number W097/00326. The E1 sequences of Ad5 were replaced by corresponding sequences of Ad35. pRSV-Ad35-E1 was digested with EcoRI and Sse83871 and the 3 kbase fragment corresponding to the Ad35 E1 sequences was isolated from gel. Construct pIG.E1A.E1B was digested with Sse83871 completely and partially with EcoRI. The 4.2 kbase fragment corresponding to vector sequences without the Ad5 E1 region but retaining the PGK promoter were separated from other fragments on low melting point (LMP) agarose gel and the correct band was excised from gel. Both obtained fragments were ligated resulting in pIG.Ad35-E1. This vector was further modified to remove the LacZ sequences present

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in the pUC119 vector backbone. The vector was digested with BsaAI and BstXI and the large fragment was isolated from gel. A double stranded oligo was prepared by annealing the following two oligos: 1BB1: 5'-GTGCCTAGGCCACGGGG-3' and 2BB2: 5'-GTGGCCTAGGCAC-3'. Ligation of the oligo and the vector fragment resulted in construct pIG135. Correct insertion of the oligo restored the BsaAI and BstXI sites and introduced a unique AvrII site. Next, a unique site was introduced at the 3' end of the Ad35-E1 expression cassette in pIG135. The construct was digested with SapI and the 3' protruding ends were made blunt by treatment with T4 DNA polymerase. The treated linear plasmid was further digested with BsrGI and the large vector-containing fragment was isolated from gel. To restore the 3' end of the HBV polyA sequence and to introduce a unique site, a polymerase chain reaction (PCR) fragment was generated using the following primers: 3270F: 5'-CACCTCTGCCTAATCATCTC-3' and 4270: GCTCTAGAAATTCCACTGCCTTCCACC-3'. The PCR was performed on pIG.Ad35.E1 DNA using Pwo polymerase. The obtained PCR product was digested with BsrGI and dephosphorylated using

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Tsap enzyme to prevent insert dimerization on the BsrGI site. The PCR fragment and the vector fragment were ligated to yield construct pIG270. New born WAG/RIJ rats were sacrificed at 1 week of gestation and kidneys were isolated. After careful removal of the capsule, kidneys were disintegrated into a single cell suspension. When most of the kidney was trypsinized all cells were re-suspended in Dulbecco's modified eagle medium (DMEM) supplemented with 10 % fetal bovine serum (FBS) and filtered through a sterile cheesecloth. Baby rat kidney (BRK) cells obtained from one kidney were plated in 5 dishes. When a confluence of 70-80 % was reached, the cells were transfected with 1 or 5 micro-g DNA/dish using the CaPO4 precipitation kit. The following constructs were used in separate transfections: pIG.E1A.E1B (expressing the Ad35-E1 region), pRSV.Ad35-E1, pIG.Ad35-E1 and pIG270 (expressing the Ad35-E1 region). Cells were incubated at 37 degrees C, 5 % CO2 until foci of transformed cells appeared. As expected, the Ad5-E1 region efficiently transformed BRK cells. Foci also appeared in the Ad35-E1 transfected cell layer although with lower efficiency. The Ad35

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transformed foci appeared at a later time point: 2 weeks post transfection compared with 7-10 days for Ad5-E1. These experiments clearly showed that the E1 genes of the B group virus Ad35 were capable of transforming primary rodent cells. This proved the functionality of the Ad35-E1 expression constructs and confirmed earlier findings of the transforming capacity of the B-group viruses Ad3 and Ad7. To test if the cells in the foci were really transformed a few foci were picked and expanded. From the 7 picked foci at least 5 turned out to grow as established cell lines.(115 pages)

DESCRIPTORS: cattle subgroup-B, type-35 adeno virus vector construction, primary human retinoblast, HEK-293, human amniocyte, baby rat kidney, packaging cell culture, phosphoglycerate-kinase promoter, hepatitis B virus poly-adenylation signal, polymerase chain reaction, DNA primer, appl. gene therapy, human recombinant growth factor, antibody prepare, influenza virus, herpes simplex virus, rota virus, measles virus animal mammal cell culture embryo enzyme EC-2.7.2.3 hepadna virus DNA amplification orthomyxo virus herpes virus reo virus

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paramyxo virus DNA sequence (21, 51)

SECTION: BIOMANUFACTURING and BIOCATALYSIS-Animal/Plant Cell Culture-  
GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and  
Analysis; THERAPEUTICS-Gene Therapy-THERAPEUTICS-Protein Therapeutics;  
PHARMACEUTICALS-Vaccines

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0293994 DBR Accession Number: 2002-15841 PATENT

Vector system for preparing recombinant adeno-associated viral particles, used for high-level expression of heterologous therapeutic proteins in eukaryotic cells - vector-mediated gene transfer, expression in host cell and packaging cell culture for gene therapy

AUTHOR: ORBERGER G; HELLMUTH K; WAGENER C

PATENT ASSIGNEE: ARIMEDES BIOTECHNOLOGY GMBH 2002

PATENT NUMBER: WO 200238782 PATENT DATE: 20020516 WPI ACCESSION NO.:  
2002-435853 (200246)

PRIORITY APPLIC. NO.: DE 1056210 APPLIC. DATE: 20001113

NATIONAL APPLIC. NO.: WO 2001EP13125 APPLIC. DATE: 20011113

LANGUAGE: German

ABSTRACT: DERWENT ABSTRACT: NOVELTY - Vector system (A) for preparing recombinant adeno-associated virus (rAAV) particles (VP) comprising:  
(i) at least two plasmid vectors (PV) that include the two inverted terminal repeats (ITR) of AAV and additional sequences; and (ii)

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plasmid vectors (PV1) without ITRs but containing the rep and cap genes of AAV required for replication and packaging, is new. DETAILED DESCRIPTION - Vector system (A) for preparing recombinant adeno-associated virus (rAAV) particles (VP) comprising: (i) at least two plasmid vectors (PV) that include the two inverted terminal repeats (ITR) of AAV and additional sequences; and (ii) plasmid vectors (PV1) without ITRs but containing the rep and cap genes of AAV required for replication and packaging, is new. The additional sequences in PV are:  
(a) the E4 gene of adenovirus (AdV), especially the part containing orf6; (b) optionally the E1 gene of AdV, particularly E1B and

specifically the E1B55K-encoding part; (c) optionally one or two heterologous genes X and Y, to be expressed; and (d) optionally the Adv VA and E2A genes. The PV must differ in respect of at least one of (i)-(iii). Components (i)-(iii) are flanked by ITRs so that, after transfection into eukaryotic cells, they are packaged, with the ITRs, into replication-incompetent rAAV virions. INDEPENDENT CLAIMS are also included for: (1) virus stocks containing at least two populations of

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replication-incompetent rAAV virions containing (i)-(iii); (2) preparing recombinant VP by co-transfection into eukaryotic cells; (3) virus stock of rAAV prepared by method (b); (4) expressing a gene in eukaryotic cells using the VP of (b); (5) plasmid kit containing PV in at least two separate compartments or containers; (6) plasmid vector (PV2) containing a fragment of the Adv VA gene, not larger than 0.5 kb, preferably obtained by polymerase chain reaction (PCR) amplification of Adv, especially Ad2, DNA; (7) plasmid vector (PV3) containing components (i) and/or (ii) flanked by ITRs for packaging into replication-incompetent rAAV which contain no coding sequences heterologous to AAV between the ITRs; and (8) plasmid pAdHelp (11492 bp) and plasmid pAIM E1B55K (6575 bp). BIOTECHNOLOGY - Preferred System: Each sequence (i)-(iv) is present in only one PV, and the rep/cap genes may be included in the same PV, but are not flanked by ITRs. The vector containing the rep and cap genes also contains the VA and/or E2A gene. After transfection, the system produces two or three replication incompetent rAAV. Particularly one PV contains the E4 and

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E1B sequences, while the other contains the heterologous gene(s), or one contains the E4 and X components and the other the E1B and Y components, or one contains X while the other contains the E4 and E1B components. In all cases the first PV may also contain the VA and E2A genes. PV are the plasmids described in (h). The E4, \*\*\*E1B\*\*\*, X and Y genes are controlled by different heterologous, preferably inducible, \*\*\*promoters\*\*\*. Preferred Materials: The VA gene is the fragment described in (f). PV2 may also include the E4 and E1 components, flanked by ITRs, optionally also VA and/or E2A. Typically X and Y encode a heterodimeric glycoprotein, e.g. follicle- or thyroid-stimulating hormones, luteinizing hormone and human chorionic gonadotropin, but also a wide range of non-dimeric proteins such as growth factors, cytokines, urokinase, blood coagulation factors etc., optionally as a fusion protein to facilitate purification. USE - The system is useful for producing rAAV for production of a wide range of therapeutic glycoproteins in eukaryotic cells (claimed). ADVANTAGE - The system provides efficient, large scale production of heterologous

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proteins in mammalian cells, without requiring an adenovirus helper. It is not toxic to host cells and does not cause lysis, so produced proteins are highly pure. EXAMPLE - HEK293 cells were transfected with plasmid pAdHelp (11429 bp, containing the adenoviral E4orf6 sequence between inverted terminal repeats (ITRs) and the E2A gene and minimal VA gene fragment, not flanked by ITRs), the pAIM E1B55K plasmid (6575 bp, containing the adenoviral E1B55K sequence, between ITRs) and the pAAVHelp plasmid (not described, presumably containing rep and cap functions). After 3 days at 37degreesC under 5% carbon dioxide cultured

cells were washed, centrifuged and treated with lytic buffer. After three freeze-thaw cycles, the mixture was centrifuged to recover the clear supernatant as a suspension of recombinant virus particles. These were tested for infectivity in HEK293 cells. (59 pages)

DESCRIPTORS: recombinant adeno-associated virus vector prepare, vector-mediated adeno virus E1, E1B, E1B55K, E2A, FSH, thyrotropin, LH, HCG, somatotropin, cytokine, urokinase, blood coagulation factor, glycoprotein gene transfer, expression in HEK-293 cell, eukaryotic

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\*\*\*packaging\*\*\* \*\*\*cell\*\*\* culture, polymerase chain reaction, appl. gene therapy parvo virus hormone gonadotropin enzyme protease thrombolytic EC-3.4.21.73 embryo kidney animal human mammal DNA amplification DNA sequence (21, 45)

SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; DISEASE-Blood and Hematopoietic Cells-DISEASE-Endocrine/Metabolic System; BIOMANUFACTURING and BIOCATALYSIS-Animal/Plant Cell Culture-DISEASE-Other Diseases

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| E6  | 3     | AU=FARSON, FRANK S.    |

E7 1 AU=FARSON, JAMES ROBERT, JR.  
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| E8  | 1     | AU=FARSON FP        |
| E9  | 1     | AU=FARSON FS        |
| E10 | 1     | AU=FARSON G.        |
| E11 | 1     | AU=FARSON O M       |
| E12 | 8     | AU=FARSON R         |

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? e au=tao, luqun

| Ref | Items | Index-term      |
|-----|-------|-----------------|
| E1  | 2     | AU=TAO, LUO-WEN |
| E2  | 2     | AU=TAO, LUOYI   |
| E3  | 2     | *AU=TAO, LUQUN  |
| E4  | 7     | AU=TAO, M       |
| E5  | 123   | AU=TAO, M.      |
| E6  | 4     | AU=TAO, M. C.   |
| E7  | 1     | AU=TAO, M. D.   |
| E8  | 1     | AU=TAO, M. F.   |
| E9  | 7     | AU=TAO, M. H.   |
| E10 | 1     | AU=TAO, M. HUA  |
| E11 | 1     | AU=TAO, M. J.   |
| E12 | 5     | AU=TAO, M. L.   |

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? e au=tao luqun

| Ref | Items | Index-term    |
|-----|-------|---------------|
| E1  | 2     | AU=TAO LUCY   |
| E2  | 17    | AU=TAO LUO    |
| E3  | 0     | *AU=TAO LUQUN |
| E4  | 2     | AU=TAO LUYANG |
| E5  | 6     | AU=TAO LW     |
| E6  | 27    | AU=TAO LX     |
| E7  | 4     | AU=TAO LY     |
| E8  | 2     | AU=TAO LZ     |
| E9  | 633   | AU=TAO M      |
| E10 | 2     | AU=TAO M B    |
| E11 | 1     | AU=TAO M C    |
| E12 | 3     | AU=TAO M D    |

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? e au=yu, dechao

| Ref | Items | Index-term     |
|-----|-------|----------------|
| E1  | 1     | AU=YU, DECHANG |
| E2  | 11    | *AU=YU, DECHAO |
| E3  | 2     | AU=YU, DECHUN  |
| E4  | 1     | AU=YU, DECIA   |
| E5  | 3     | AU=YU, DEEN    |
| E6  | 1     | AU=YU, DEFANG  |

E7 . 2 AU=YU, DEFEN  
E8 . 2 AU=YU, DEFU  
E9 . 2 AU=YU, DEGAN  
E10 20 AU=YU, DEGANG  
E11 . 2 AU=YU, DEGUANG  
E12 . 1 AU=YU, DEGUI

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? e au=yu dechao

| Ref | Items | Index-term      |
|-----|-------|-----------------|
| E1  | 10    | AU=YU DECAI     |
| E2  | 1     | AU=YU DECHANG   |
| E3  | 9     | *AU=YU DECHAO   |
| E4  | 2     | AU=YU DEFEN     |
| E5  | 1     | AU=YU DEGANG    |
| E6  | 2     | AU=YU DEGONG    |
| E7  | 1     | AU=YU DEGUO     |
| E8  | 1     | AU=YU DEHANG    |
| E9  | 7     | AU=YU DEHONG    |
| E10 | 3     | AU=YU DEHUA     |
| E11 | 2     | AU=YU DEINEKA E |
| E12 | 19    | AU=YU DEJIANG   |

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